Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Amendment of Part 90 of the	)	
Commission's Rules to Adopt	)	PR Docket No. 93-61
Regulations for Automatic	)	
Vehicle Monitoring Systems	)	

REPLY COMMENTS OF THE CONSUMER ELECTRONICS GROUP OF THE ELECTRONIC INDUSTRIES ASSOCIATION

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SUMMARY OF REPLY COMMENTS

The Consumer Electronics Group of the Electronic Industries Association ("EIA/CEG") has reviewed the comments submitted in response to the Commission's Notice of Proposed Rulemaking ("Notice") and believes they demonstrate that adoption of the proposed Part 90 rules for the Location and Monitoring Service ("LMS") would cause serious injury to manufacturers and retailers of numerous Part 15 products operating at 902-928 MHz and to the many organizations and individuals that rely on these products. The Commission should not imperil the many benefits which have been and continue to be produced as a result of the Commission's affirmative, long-standing encouragement to developers of Part 15 products.

The first-round comments confirm that innovation is flourishing as a result of the Commission's decision to expand opportunities for Part 15 devices to operate in the 902-928 MHz frequency band. The Commission has steadfastly sought to encourage development of Part 15 products for use in this band, and many companies have responded to the Commission's actions by developing a wide variety of innovative products that are winning wide acceptance in the business and consumer markets. In direct response to the opportunities created by the Commission, numerous organizations have invested heavily in research and development for 900 MHz Part 15 products. Sales figures confirm that this confidence in the growth of 900 MHz Part 15 products is well-founded.

The initial responses to the Notice strengthen EIA/CEG's concerns about the danger that adoption of the proposed Part 90 amendments could create intolerable interference problems. The record provides abundant evidence that expanded private radio use of the 902-928 MHz band would lead to interference that could undermine opportunities for Part 15 innovation and impede literally millions of consumers from using

devices they have already purchased. Such a development most assuredly would not serve the public interest.

Frequency management is among the Commission's most fundamental responsibilities. The Commission does not ordinarily authorize new or expanded uses of a frequency band when it knows that the likely result will be interference, and it should not depart from its past practice in this instance.

No party in this proceeding has demonstrated a justification for curtailing opportunities for Part 15 products to operate in the 900 MHz band. Indeed, the Commission has already made an affirmative determination that Part 15 innovation in this band is in the public interest, and the marketplace response to the Commission's encouragement has fully justified the Commission's expectations. The record provides no foundation upon which the Commission could at this point radically reverse its course. Moreover, even if future products could properly be limited, curtailing the use of existing 900 MHz Part 15 products would present insurmountable obstacles.

Responses to the Notice have also called into question the need for expanding Part 90 operations in the 902-928 MHz band. There appear to be other ways in which vehicle identification and location capabilities can be provided, without causing the kinds of interference problems that are inherent in the present proposal. A variety of parties have identified other frequency bands that might be used for LMS-type services, as well as other existing services and technologies that can fulfill the same needs.

The uncertainty created by the pendancy of the proposals in the Notice is already causing adverse effects in the Part 15 marketplace. Prompt action is needed to eliminate this uncertainty and to restore confidence that the Commission will continue to encourage the robust innovation that has been triggered by the Part 15 rule amendments.

EIA/CEG does not support partial solutions that would merely reduce to a limited degree, or simply postpone, adverse effects on Part 15 products. Ideas such as grandfathering Part 15 devices for three years, delaying expanded LMS operations, or concentrating LMS operations in a portion of the 902-928 MHz band have all been proposed, but none of these measures would preserve the full measure of opportunities for manufacturers, retailers, and consumers that were created just a few short years ago by the Part 15 rule amendments. Under present circumstances, it is premature to make any permanent authorization for AVM or LMS in the 902-928 MHz band.

On the present record, EIA/CEG believes that the Commission should abandon its effort to accommodate additional Part 90 uses in the 902-928 MHz band. We respectfully recommend that the proposals in the Notice be withdrawn. To the extent the Commission may remain inclined to create expanded opportunities for LMS-type services, it should focus on frequencies other than 902-928 MHz.

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REPLY COMMENTS OF THE CONSUMER ELECTRONICS GROUP OF THE ELECTRONIC INDUSTRIES ASSOCIATION

The Consumer Electronics Group of the Electronic Industries Association ("EIA/CEG") hereby replies to comments submitted by other parties in response to the above-captioned Notice of Proposed Rulemaking ("Notice").[1] EIA/CEG's review of the first-round comments confirms its view that adoption of the proposed Part 90 rules for the Location and Monitoring Service ("LMS") would cause serious injury to manufacturers and retailers of numerous Part 15 products operating at 902-928 MHz (generally, "900 MHz") and to the many organizations and individuals that rely on these products. The Commission should not imperil the many benefits which have been and continue to be produced as a result of the Commission's affirmative, long-standing encouragement to developers of 900 MHz Part 15 products. Accordingly, the proposed Part 90 rule changes should be withdrawn.

I. The Commission's Part 15 Amendments Are Producing the Desired Results.

The first-round comments confirm EIA/CEG's view that innovation is flourishing as a result of the Commission's decision to expand opportunities for Part 15 devices to operate

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1/ 8 FCC Rcd. 2502 (1993) ("Notice").

in the 902-928 MHz frequency band. The Commission has steadfastly sought to encourage development of Part 15 products for use at 900 MHz.[2] The record demonstrates that many companies have responded to the Commission's actions by developing innovative products that are winning wide acceptance in the business and consumer markets.

The comments filed in response to the Notice discuss a startling diversity of valuable purposes served by 900 MHz products.[3] Examples of products designed primarily

indicator of the growth potential of this market is the substantial investment that has already been made in research and development. Ericsson alludes to "hundreds of millions of dollars in research and development, marketing, and other costs to develop and produce low power Part 15 equipment for the 902-928 MHz band."[4] The Alarm Industry Communications Committee mentions "billions of dollars invest[ed] in research, development, manufacturing, and marketing of Part 15 devices."[5] The Part 15 Coalition estimates total Part 15 investment in 900 MHz products at "nearly two billion dollars."[6]

These estimates appear to be consistent with individualized reports of Part 15 R&D efforts. A single utility has invested approximately $30 million of ratepayer money in research and development of an "automated distribution system automation program."[7] An alarm device manufacturing company has invested $10 million in development of 902-928 MHz products.[8] A manufacturer of bar-code technologies reports having invested more than $83 million in 900 MHz technology since 1990.[9] Considering the scores of manufacturers which are developing Part 15 products for this band, estimates of billion-dollar-plus investment in R&D and related expenses seem to be very much on the mark.

Sales figures confirm that this confidence in the growth of 900 MHz Part 15 products is well-founded. In the case of 900 MHz cordless phones, one manufacturer estimates that total industry sales in 1994 will be on the order of $150 million,[10] and explosive

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4/ Comments of Ericsson at ii.

5/ Comments of Alarm Industry Communications Committee at 8.

6/ Comments of Part 15 Coalition at 6.

7/ Comments of Southern California Edison Company at 4.

8/ Comments of ADEMCO at 9.

9/ Comments of Symbol Technologies at 3.

10/ Comments of Cobra at 3 n.1.

growth is expected in the next few years.[11] For wireless LANs, one manufacturer estimates aggregate U.S. sales of $39 million in 1992 and predicts that the market could approach $700 million by 1996.[12] In the case of wireless security systems, "millions of Part 15 devices [are] in use as an integral part of alarm services," and a growing percentage of these are in the 900 MHz band.[13] For another category of consumer product, a single manufacturer reports unit sales of 300,000 to date, with monthly volumes still doubling during what is still considered to be a "very early stage[] in the product sales cycle."[14] Other related figures are similarly impressive.[15]

This record demonstrates in a compelling fashion the very substantial benefits that accrue to American consumers and to business and governmental organizations as a result of the Commission's previous efforts to encourage development of Part 15 products. This record makes it inappropriate to proceed with a proposal that would cause serious injury to Part 15 manufacturers and vendors, as well as to literally millions of present and future users of 900 MHz Part 15 products. Indeed, it illustrates that the time may have arrived to reconsider the

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11/ See Comments of InterDigital Communications Corporation at 7 (expects "millions of Part 15 cordless phones operating in the 900 MHz band" within the next few years); Comments of Sensormatic Electronics Corporation at 2 (expects "approximately 30 million high-powered digital cordless phones operating in the band by 1996").

12/ Comments of Telxon at 3.

13/ Comments of Alarm Industry Communications Committee at 4.

14/ Comments of Recoton at 2.

15/ See, e.g., Symbol Technologies at 2-3 (has installed 2 million bar-code scanners and hand-held computers, and 900 MHz is fastest-growing segment of home automation market; expects to ship $50 million worth of 900 MHz products in 1993).

policy which accords Part 15 devices a status inferior to that of every other authorized use of the spectrum.[16]

II. The Proposed Part 90 Amendments Could Create Serious Interference Problems.

The initial responses to the Notice strengthen EIA/CEG's concerns about the danger that adoption of the proposed Part 90 amendments could create intolerable interference problems. The record provides abundant evidence that expanded private radio use of the 902-928 MHz band would lead to interference that could undermine opportunities for Part 15 innovation and impede consumers from using devices they have already purchased. Such a development most assuredly would not serve the public interest.[17]

The comments of the Mobile and Personal Communications Consumer Radio Section of the Telecommunications Industry Association ("TIA") contain a technical analysis which shows that "a wideband pulse-ranging system cannot reliably operate among even a moderate deployment of uncontrolled, randomly-located Part 15 devices."[18] Similar results

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16/ See Comments of Knogo Corporation et al., at 12-13; Comments of Domestic Automation Company at 12-14. It is difficult enough to operate under a regime in which products that generate and use radio frequency energy are bound (1) not to cause harmful interference to any authorized radio service and (2) to accept whatever interference may be caused to them. 47 C.F.R. § 15.5(b) (1992). Instead of relegating Part 15 products to a status that is inferior even to newly proposed uses of a particular frequency band, the Commission may find it more fruitful to consider giving at least some increased status and protection to Part 15 products (as appears to be contemplated for "Part 16" products in the yet-to-be-adopted rules for Personal Communications Services).

17/ EIA/CEG is aware that serious concerns have also been expressed about the potential for interference from LMS to other services, such as amateur radio. These concerns, like those relating to Part 15 use, merit serious consideration by the Commission.

18/ Comments of TIA at 2-4.

are reflected in analyses by several other parties, including AT&T Bell Laboratories.[19] These problems are already being experienced to some degree, but they would grow considerably worse if the proposals in the Notice were to be adopted.[20]

The Commission cannot responsibly permit this kind of interference situation to develop,[21] especially in view of the important role played by Part 15 products in protecting the safety of life and property.[22] Frequency management is among the Commission's most fundamental responsibilities. The Commission does not ordinarily authorize multiple uses of a frequency band when it knows that the likely result will be interference, and it should not depart from its past practice in this instance.

III. Proponents of LMS Have Not Adequately Addressed Part 15 Issues.

The first-round comments have not provided any assurance that expanded private radio use of the 902-928 MHz band can be authorized without disrupting existing uses of those

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19/ See Comments of AT&T at Appendix A; Comments of Metricom, Inc at 7-8 and Appendix A (because of fragile design of Teletrac system, Part 15 device can interfere with Teletrac wideband-type system at distances of 8.2 -- or possibly even 104 -- miles); Comments of Recoton at 3 ("even the 'permitted' out-of-band emissions would not only interfere, but may even saturate a typical Part 15 receiver -- rendering it totally useless"); Comments of Thomson at 3

frequencies. Although the Commission specifically asked about interrelationships between Part 15 and Part 90 operations, proponents of LMS provided no meaningful answers.

Indeed, many of the proponents of AVM or LMS provided no information whatsoever regarding the likely effects of the proposal in the Notice on Part 15 devices.[23] Other AVM or LMS proponents provided only the most cursory of assurances that AVM/LMS and Part 15 devices can co-exist.[24]

More troubling still are the answers (and especially the non-answers) to the Commission's request for guidance on how the various uses of 902-928 MHz can coexist. Although the Commission specifically asked what measures would be needed to minimize interference between AVM/LMS systems and other authorized uses of the 902-928 MHz spectrum, most proponents of expanded Part 90 use of the 900 MHz band ignored the question. No specific suggestions on this topic were offered by Teletrac, Amtech, Pinpoint, and many of the other AVM/LMS organizations.[25] One organization, citing interference from

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23/ See, e.g., Comments of IVHS America (no discussion of Part 15); Comments of Location Services (same); Comments of Amtech Communications (same).

24/ See, e.g., Comments of Pinpoint Communications, Inc. at 28; Comments of Teletrac at 11-12 n.13 (in lengthy two-volume pleading, a single footnote addresses Part 15; belief that cross-interference is unlikely rests on assumptions (1) that most Part 15 devices will be (a) consumer devices and (b) used indoors and (2) that growth of Part 15 devices will be stopped by saturation); Comments of Mark IV IVHS Division at 15 (tests of Mark IV system have found no cases "in which any Mark IV system either disrupted or impaired the operations of other devices or received interference from any of these devices which disrupted or impaired its own operations"); Comments of Hughes Aircraft Company at 14 (for local-area LMS systems, interference from Part 15 and other uses should be "a relatively rare event").

25/ One organization that failed to mention Part 15 did ask that LMS be given "co-primary" status in the band to avoid displacement or interruption as a result of higher priority claims on the spectrum. Comments of The Interagency Group at 11-12. This seems to reflect a tacit recognition that LMS services would be vulnerable to interference from, or could cause interference to, Federal Government Radiolocation or Industrial, Scientific, and Medical ("ISM") Services.

wireless LANs, anti-shoplifting clothing tags, narrowband LMS, and amateurs, suggested that Part 15 uses should be restricted to frequencies reserved for narrowband LMS systems.[26] But generally, the proponents of AVM and LMS services gave remarkably short shrift to Part 15 products.

No party in this proceeding has demonstrated a justification for curtailing opportunities for Part 15 products to operate in the 900 MHz band.[27] Indeed, the Commission has already made an affirmative determination that Part 15 innovation in this band is in the public interest, and the marketplace response to the Commission's encouragement has fully justified the Commission's expectations. The record provides no foundation upon which the Commission could at this point radically reverse its course.[28] Moreover, even if future products could properly be limited, curtailing the use of existing 900 MHz Part 15 products would present insurmountable obstacles.[29]

26/ Comments of Mobilevision, L.P. at 23-24, 45.

27/ EIA/CEG anticipates that AVM/LMS proponents may assert that there is no real danger of interference between Part 15 products operating under existing rules and Part 90 services operating under the proposed rules. The evidence of record is to the contrary. Nonetheless, were the Commission to rely on assurances from AVM/LMS proponents that their services and Part 15 products can peacefully coexist, those parties should not later be permitted to complain about Part 15 products that operate within applicable technical standards or to seek to curtail the operation of these devices.

28/ See Motor Vehicle Manufacturers Ass'n v. State Farm, 463 U.S. 29, 42 (1983); Great Boston Television Corp. v. FCC, 444 F.2d 841, 852 (1970). The Commission is also firmly committed to a regulatory course under which spectrum allocations and technical standards are designed so as to minimize the likelihood of interference from Part 15 products to authorized radio services. See generally Comments of ADEMCO at 10-11. The decision to allow Part 15 devices greater latitude in what is essentially an ISM band was perfectly consistent with this policy. By contrast, it would be quite a different matter to change the rules of such a band to incorporate services that are fall more sensitive to interference than are ISM uses, especially now that the Part 15 devices whose creation the Commission encouraged are now becoming widely deployed, precisely as the Commission had intended.

29/ See Comments of Southern California Edison Company at 10 ("questions how the Commission would implement an order directing the millions of Part 15 devices that are currently in the hands of consumers to cease operations").

IV. Proponents of LMS Have Not Established a Need That Would Justify Causing Substantial Injury to Part 15 Manufacturers, Vendors, and Users.

Responses to the Notice have also called into question the need for expanding Part 90 operations in the 902-928 MHz band. There appear to be other ways in which vehicle identification and location capabilities can be provided, without causing the kinds of interference problems that are inherent in the present proposal.

A variety of parties have identified other frequency bands that might be used for LMS-type services, as well as other existing services and technologies that can fulfill the same needs.[30] For the primary purposes to be served by LMS, there are "alternate, superior, and considerably more spectrum-effective techniques" such as Global Positioning Service, PLMRS, LMS, and PCS.[31] Other possibilities identified in the comments include police radio service (for stolen vehicle recovery), Electronic Tracking Service (for tracking stolen goods), Loran C technology, satellite networks, and FM subcarriers.[32] Further, as at least two parties observed, proponents of LMS operations will have the opportunity to seek other spectrum by way of auctions, under legislation that is expected to pass the Congress relatively soon.[33]

Meanwhile, the case for FCC action in favor of expanded Part 90 use for AVM/LMS services has continued to weaken. Substantial questions have been raised about

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30/ See Comments of Norand at 10-13; Comments of NATA at 11-12; Comments of Southern California Gas Company at 6-9;

31/ Comments of Southern California Gas Company at 6.

32/ Comments of Itron, Inc. at 7; Comments of Domestic Automation Company at 9-11: Comments of ADEMCO at 18; Comments of Sensormatic at 19-20; Comments of AT&T at 6; Comments of Part 15 Coalition at 13-16.

33/ See Comments of NATA at 13; Comments of Part 15 Coalition at 18-19.

the spectrum efficiency and other characteristics of LMS systems.[34] These problems are so severe that one party has challenged some AVM systems as failing to meet statutory standards for improving spectrum efficiency, increasing sharing between different types of users, fostering competition, and serving the largest number of users.[35]

In light of (1) the substantial doubts that have been raised about the need for increased spectrum allocations for LMS services, (2) the ready availability of other spectrum for these purposes, and (3) the questionable design and performance characteristics of at least some LMS systems, the argument for expanding LMS operations at 900 MHz is weak indeed. It falls far short of the showing that should be required to justify curtailing the consumer benefits resulting from Part 15 operations in this band.[36]

34/ See Comments of Norand at 6-7 (discussing interference susceptibility of wideband LMS systems) & 8-9 (raising concerns about biological effects of human exposure to LMS RF emissions); Comments of The Interagency Group at 3 (danger of interference to wideband LMS systems from narrowband LMS system may be as much a product of flaws in former's design as in latter's); Comments of Southern California Edison Company at 11 (FCC should not approve use of system that is so fragile it cannot coexist). Even LMS proponents stress their need for interference-free environment. See, e.g., Comments of Mobilevision, L.P. at 21-25 (unless environment is relatively interference-free, costs will be increased prohibitively and commercial viability of system will be in doubt).

35/ Comments of AT&T at 2-4 (also notes that Teletrac approach uses 50 times as much spectrum as GPS, yet capacity is only 6 times greater).

36/ One enthusiast of intelligent vehicle highway systems ("IVHS") encourages the Commission to find a way to accommodate IVHS and toll collection needs, but because of frequency congestion in the 902-928 MHz band it recommends that spectrum above this ISM band be assigned for this purpose. See Comments of the Florida Department of Transportation at 1-2.

V. The Proposed Amendments of Part 90 Should Be Withdrawn.

The uncertainty created by the pendancy of the proposals in the Notice is already causing adverse effects in the Part 15 marketplace. Prompt action is needed to eliminate this uncertainty and to restore confidence that the Commission will continue to encourage the robust innovation that has been triggered by the Part 15 rule amendments.

The Commission's proposal is already causing adverse effects for Part 15 manufacturers. One major manufacturer has reported to EIA/CEG that its retailers are now considering curtailing orders for 900 MHz Part 15 products that previously had been quite popular, solely because of the pending threat of interference with LMS. Another major manufacturer has reported to EIA/CEG that it is deferring its manufacture of 900 MHz Part 15 products (even though design and development work have been concluded) for the same reason. The Commission needs to act with dispatch to remove this cloud and allow thriving innovation in Part 15 products to continue.

EIA/CEG does not support partial solutions that would merely reduce to a limited degree, or simply postpone, adverse effects on Part 15 products. Ideas such as grandfathering Part 15 devices for three years, delaying expanded LMS operations, or concentrating LMS operations in a portion of the 902-928 MHz band have all been proposed,[37] but none of these measures would preserve the full measure of opportunities for manufacturers, retailers, and consumers that were created just a few short years ago by the Part 15 rule amendments. We

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37/ See Amendment of Part 90 of the Commission's Rules to Adopt Regulations for Automatic Vehicle Monitoring Systems, PR Docket No. 93-61, DA 93-516 (released May 5, 1993) (seeks potential solutions such as restricting Part 15 devices to portion of band or placing stricter limitations on Part 15 devices in the band); Comments of Ericsson at 10-11 (limit LMS to 903-912 and 918-922 MHz, or delay LMS entry into other bands for three years); Comments of Sensormatic at 26 (restrict AVM to 920-928 MHz); Comments of Part 15 Coalition at 9 (reduce wideband AVM allocation from 8 MHz to 4 MHz).

agree with the Telecommunications Industry Association that it is premature to make any permanent authorization for AVM or LMS in the 902-928 MHz band.[38] Even if new manufacturing of Part 15 devices could be stopped tomorrow (a development that would deny consumers the very substantial benefits made possible by innovation in Part 15 products), this would not affect the millions of such devices that are already operating in the band. To identify, confiscate, and deactivate them all would entail astronomical costs and would likely be unsuccessful in any event.[39]

On the present record, EIA/CEG believes that the Commission should abandon its effort to accommodate additional Part 90 uses in the 902-928 MHz band. We respectfully recommend that the proposals in the Notice be withdrawn.

VI. Conclusion.

For the reasons given above, EIA/CEG believes the Commission should abandon the proposals set forth in the Notice. The Commission's Part 15 amendments have stimulated massive investments and already resulted in significant innovations. The products resulting from the Commission's actions are meeting important needs for residential consumers, large

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38/ Comments of TIA at 5.

39/ Comments of Sensormatic at 18-19; see also Comments of ADEMCO at 11-12 ("the entire market for unlicensed products used within the band could collapse. Consumers would lose confidence in the marketplace, manufacturers would be unwilling to invest in new Part 15 product development, and the FCC would be faced with a barrage of complaints").

and small businesses, and all levels of government. These benefits cannot responsibly be sacrificed. If and to the extent the Commission is inclined to try to find other ways to accommodate mobile identification, location, and messaging services, it should focus its attention on frequency bands other than 902-928 MHz.

Respectfully Submitted,

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